

# **Navajo Abandoned Uranium Mine**

## **Site Screen Report**

*This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits, pits and waste piles. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands that may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.*

*The purpose of the form is to ascertain the status and location of the identified AUM site, and record all immediate site information associated with the mine site. Decisions and recommendations on what additional steps are needed will be provided on a separate document.*

**Mine Name: Tract 11 and Tract 11E**

**Mine IDs: 262, 263**

**Navajo AUM North Central Region**

**Prepared by:**

**Weston Solutions, Inc.**

**Contract: W91238-06-F-0083**

**20074.063.039.0020**

**April 2012**

**Part I Site Identification, Location and Status****Site Names and ID numbers as applicable****Mine ID:** 262**Map ID:** NC31**CERCLIS:** NNN000909279**Navajo Abandoned Mine Land Reclamation Program:** NA-0205**Local name / Aliases:** Tract 11 Mines; Tract 11 Mine; Kimmerle & Redd; Tract #11**Chapter and local area:** Oljato**County:** Navajo**State:** AZ**Lat/Long:** 36.9634697494 N / -110.38305262 W**Nearby road and highway:** Indian Route 6450 **Local Post Office:** Oljato, AZ**Surface Land Status: check one or more and provide ownership and contact information below****Tribal Trust Land**☒**Public lands**☐**Private**☐**Tribal Fee Land**☐**Bureau of Land Mgmt**☐**Allotment**☐**State**☐**Fee land**☐**Subsurface Mineral Rights:**

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

**Claim and operator information:**

Historical documents identified the operator of the mine in 1956 as Phillips Petroleum Company, from 1957 to 1961 as Inar Norgaard, and from 1962 to 1963 as Howard Kimmerle and Preston Redd. No additional historical ownership / lease information was identified in the EPA / AUM database.

**Number of residential structures within 200 feet of mine:** None

**Mine ID:** 263

**Map ID:** NC30

**CERCLIS:** NNN000909279

**Navajo Abandoned Mine Land Reclamation Program:** NA-0203

**Local name / Aliases:** Tract 11 shaft mine; Tract 11 Mines; SM-68-11

**Chapter and local area:** Oljato

**County:** Navajo

**State:** AZ

**Lat/Long:** 36.968336705 N / -110.391476815 W

**Nearby road and highway:** Indian Route 6450      **Local Post Office:** Oljato, AZ

**Surface Land Status:** check one or more and provide ownership and contact information below

**Tribal Trust Land**

☒

**Private**

☐

**Bureau of Land Mgmt**

☐

**State**

☐

**Public lands**

☐

**Tribal Fee Land**

☐

**Allotment**

☐

**Fee land**

☐

**Subsurface Mineral Rights:**

No information on subsurface mineral rights ownership was found in the EPA/AUM Database.

**Claim and operator information:**

Historical documents identified the operator of the mine in 1956 as Phillips Petroleum Company, from 1957 to 1961 as Inar Norgaard, and from 1962 to 1963 as Howard Kimmerle and Preston Redd. No additional historical ownership / lease information was identified in the EPA / AUM database.

**Number of residential structures within 200 feet of mine:** None

## Part II Summary of Radiological Readings

**Mine ID: 262**

**Highest gamma radiation measurement:** 441,750 counts per minute (cpm)

**Background Average:** 9,692 cpm

**Two Times Background:** 19,384 cpm

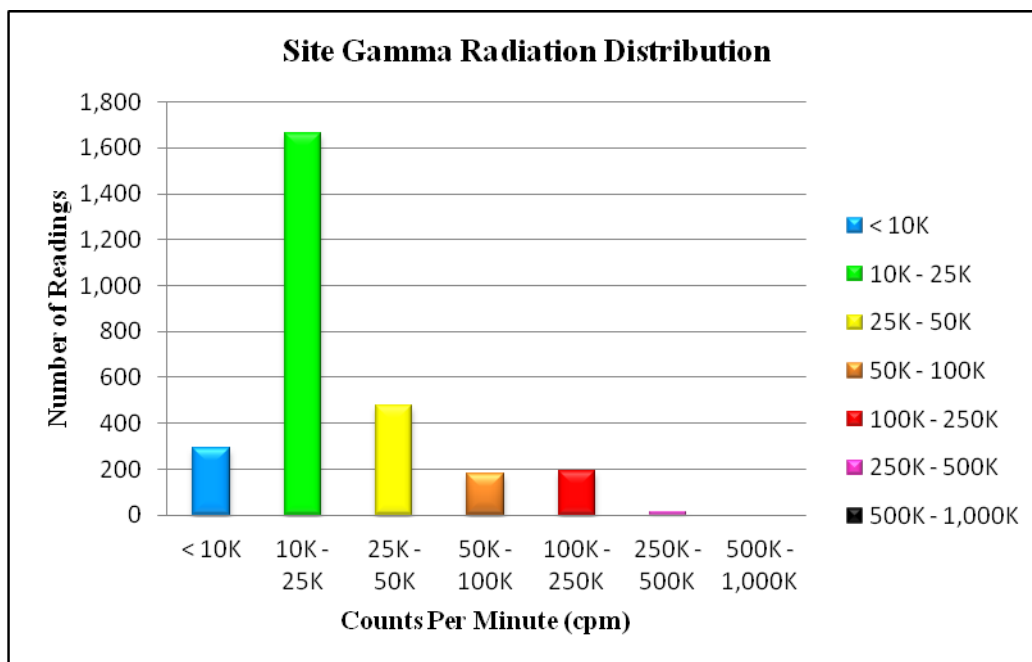
**Describe any other radiological measurements:**

A total of 2,810 gamma radiation measurements were collected from the mine site, ranging from 5,489 cpm to 441,750 cpm. Maximum levels of approximately 250,000 cpm were found in the vicinity of the waste rock and 450,000 cpm were found in eroded portions of the reclamation area. The measurements are represented in Figures 1, 2, 3 and 4.

### Distribution Chart and Statistics:

#### Site Gamma Radiation Statistics

Number of Readings	2,810
Minimum (cpm)	5,489
Maximum (cpm)	441,750
Mean (cpm)	32,742
Median (cpm)	17,164
Standard Deviation	43,841

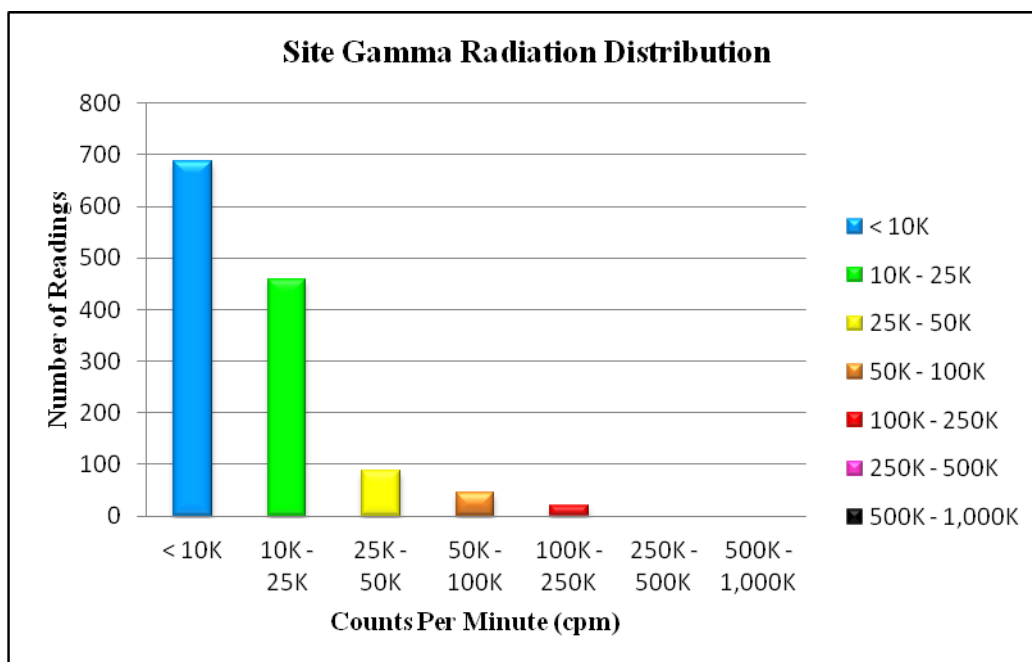


**Mine ID: 263****Highest gamma radiation measurement:** 148,871 counts per minute (cpm)**Background Average:** 9,692 cpm**Two Times Background:** 19,384 cpm**Describe any other radiological measurements:**

A total of 1,294 gamma radiation measurements were collected from the mine site, ranging from 5,477 cpm to 148,871 cpm. Maximum levels of approximately 150,000 cpm were found in reclamation area. The measurements are represented in Figures 1,2, 5 and 6.

**Distribution Chart and Statistics:**

<b>Site Gamma Radiation Statistics</b>	
Number of Readings	1,294
Minimum (cpm)	5,477
Maximum (cpm)	148,871
Mean (cpm)	15,781
Median (cpm)	9,761
Standard Deviation	19,230



### **Part III      Status of Reclamation and Mine Waste**

#### **Mine ID: 262**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed: Yes      Waste Pile onsite: No**

**NAMLRP Project Number: NA-0205**

**NAMLRP Mine features: 3 Portals**

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**The following information was obtained from field observations collected during the 2011 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

#### **Observed reclamation work and status:**

##### **Adits:**

None Observed

##### **Waste Piles:**

Light grey rock (fine) on downslope of graded reclamation area, approximately 100' x 25'

##### **Pits:**

None Observed

##### **Shafts:**

None Observed

##### **Other Debris and Mine Features:**

Reclaimed/graded area in south portion of site with some metal mining debris

**Mine ID: 263**

**The following information was obtained from the Navajo Abandoned Mine Land Reclamation Program (NAMLRP) Point Features Database:**

**NAMLRP Status of the mine site: Reclaimed: Yes      Waste Pile onsite: No**

**NAMLRP Project Number: NA-0203**

**NAMLRP Mine features: 2 Verticals**

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**The following information was obtained from field observations collected during the 2011 site screening:**

**Provide description and status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all caps.**

**Observed reclamation work and status:**

**Adits:**

None Observed

**Waste Piles:**

None Observed

**Pits:**

None Observed

**Shafts:**

None Observed

**Other Debris and Mine Features:**

Site appears to be one large cap (two former shafts on topo), with some small metal mining debris.

## **Part IV      Site Observations and Environs**

### **Mine ID: 262**

**Observed Residential Structures (number and human habitation status of structures at the following distances from the mine site):**

**0 to 200 feet:** 50 ft S - Fenced sheep pen/corral

**200 feet to 0.25 mile:** None Observed

**Observed Public or Commercial Structures (schools, clinics, Chapter Houses, places of business and any other structures used by members of the community at the following distances from the mine site):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Levels measured around the perimeter(s) of the identified structure(s):**

Background Levels

**Observed Water Sources (number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine site):**

**0 to 0.25 miles:** None Observed

**0.25 miles to 4 miles:** None Observed

**Sensitive Environments (all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation):**

None observed

**Known Site History (information from interviews with Chapter officials and residents and database review, includes: mine ownership, type of mining operation, period of operation, known amount of production, and any other information provided):**

The Tract 11 and Tract 11E (#262) mine claim consists of an area of 10,022 m<sup>2</sup>. The mine was identified as being operational from 1958 to 1964. While operational, the mine had a total reported production volume of 14,913 tons. No additional historical ownership / lease information was identified in the EPA / AUM database.



**Mine ID: 263**

**Observed Residential Structures (number and human habitation status of structures at the following distances from the mine site):**

**0 to 200 feet:** None Observed

**200 feet to 0.25 mile:** None Observed

**Observed Public or Commercial Structures (schools, clinics, Chapter Houses, places of business and any other structures used by members of the community at the following distances from the mine site):**

**0 to 200 feet:** None observed

**200 feet to 0.25 mile:** None observed

**Levels measured around the perimeter(s) of the identified structure(s):**

None

**Observed Water Sources (number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine site):**

**0 to 0.25 miles:** None Observed

**0.25 miles to 4 miles:** None Observed

**Sensitive Environments (all sensitive environments located within visible range of the mine site, including: wetlands, endangered species, habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation):**

None observed

**Known Site History (information from interviews with Chapter officials and residents and database review, includes: mine ownership, type of mining operation, period of operation, known amount of production, and any other information provided):**

The Tract 11 and Tract 11E (#263) mine claim consists of an area of 6,927 m<sup>2</sup>. The mine was identified as being operational from 1958 to 1964. While operational, the mine had a total reported production volume of 14,913 tons. No additional historical ownership / lease information was identified in the EPA / AUM database.

## **Part V          Response Action Summary**

**Mine ID: 262**

### **Summary of Evaluation Factors:**

#### ***Accessibility:***

**Was the mine easily accessible to potential human activity?**

Yes

#### ***Radiological Measurements:***

**Were any gamma radiation measurements collected at the mine greater than two times the site-specific background levels?**

Yes

#### ***Waste Piles:***

**Were any unreclaimed waste piles observed at the mine with gamma radiation measurements greater than two times the site-specific background levels?**

Yes

#### ***Structures:***

**Were any structures observed within 200 feet of the mine?**

No

#### ***Potential Drinking Water Sources:***

**Were any potential drinking water sources observed within 4 miles of the mine?**

No

#### ***Reclamation:***

**Was the mine reported to be previously reclaimed, or did the mine appear to be reclaimed?**

Yes

**Mine ID: 263**

**Summary of Evaluation Factors:**

***Accessibility:***

**Was the mine easily accessible to potential human activity?**

Yes

***Radiological Measurements:***

**Were any gamma radiation measurements collected at the mine greater than two times the site-specific background levels?**

Yes

***Waste Piles:***

**Were any unreclaimed waste piles observed at the mine with gamma radiation measurements greater than two times the site-specific background levels?**

No

***Structures:***

**Were any structures observed within 200 feet of the mine?**

No

***Potential Drinking Water Sources:***

**Were any potential drinking water sources observed within 4 miles of the mine?**

No

***Reclamation:***

**Was the mine reported to be previously reclaimed, or did the mine appear to be reclaimed?**

Yes

## Part VI      Photos



**Photo 1**

Mine Site #262



**Photo 2**

Mine Site #262 – Reclamation area



**Photo 3**

Mine Site #262



**Photo 4**

Mine Site #262 – Waste rock





**Photo 5**

Mine Site #262 - Drainage



**Photo 6**

Mine Site #262 - Corral



**Photo 7**

Mine Site #263



**Photo 8**

Mine Site #263



**Photo 9**

Mine Site #263



**Part VII      Contact Reports and Information**

Name: Eugene Esplain

Title or official role (if any): Navajo EPA Superfund Program

Telephone number: (928) 871-7331

Address: PO Box 2946, Window Rock, AZ 86515

Information provided: Lead Regulatory Agency

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Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

Telephone number: \_\_\_\_\_

Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

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Name: \_\_\_\_\_

Title or official role (if any): \_\_\_\_\_

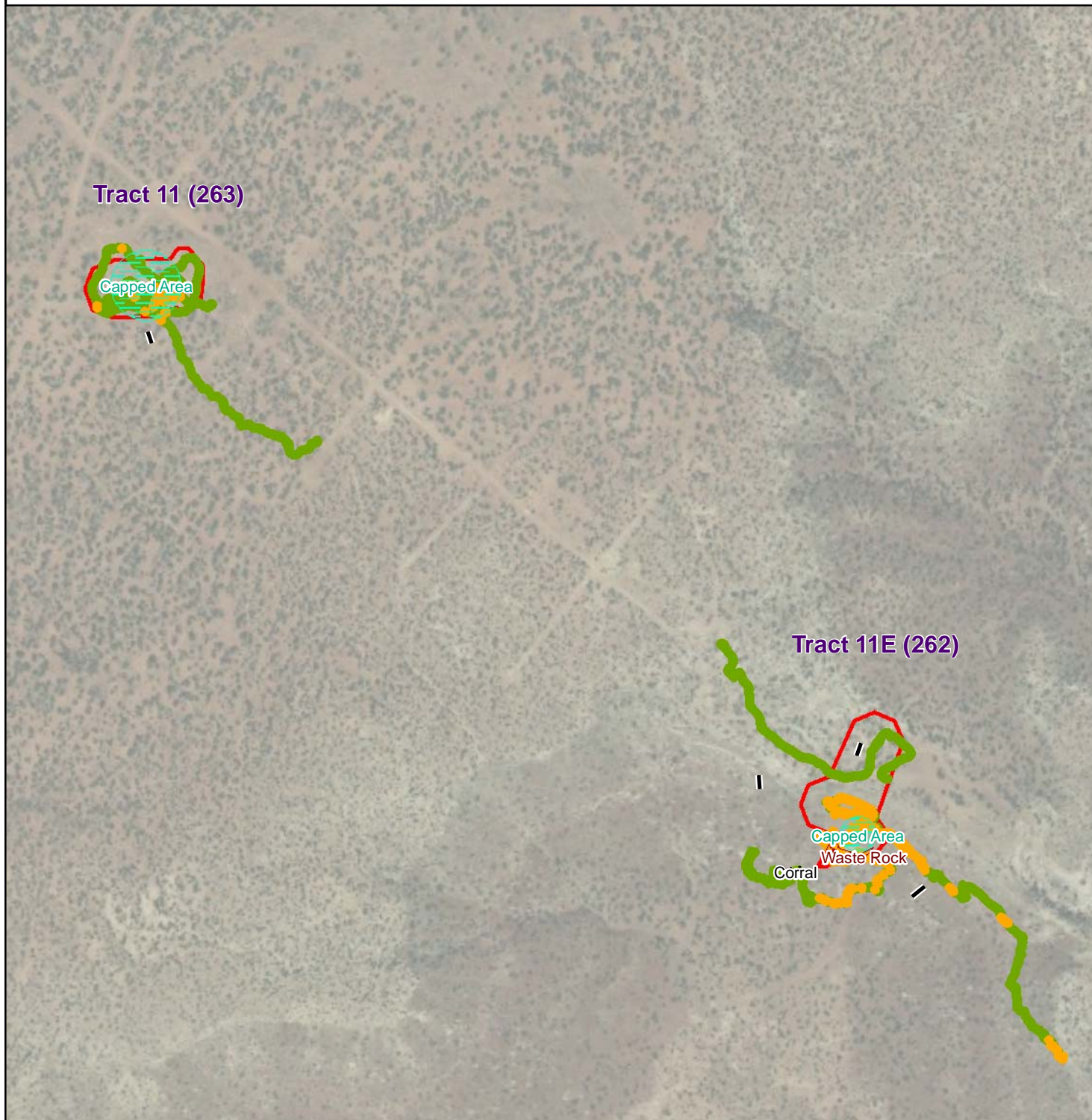
Telephone number: \_\_\_\_\_

Address: \_\_\_\_\_

Information provided: \_\_\_\_\_

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**Figure 1 - Gamma Radiation Measurements, Above Two Times Background  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



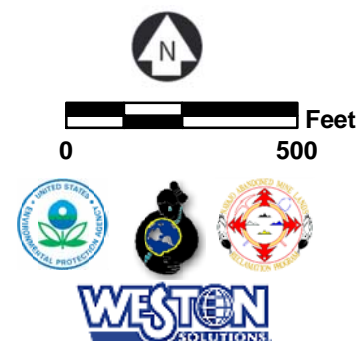
**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

Measured as counts per minute (cpm)

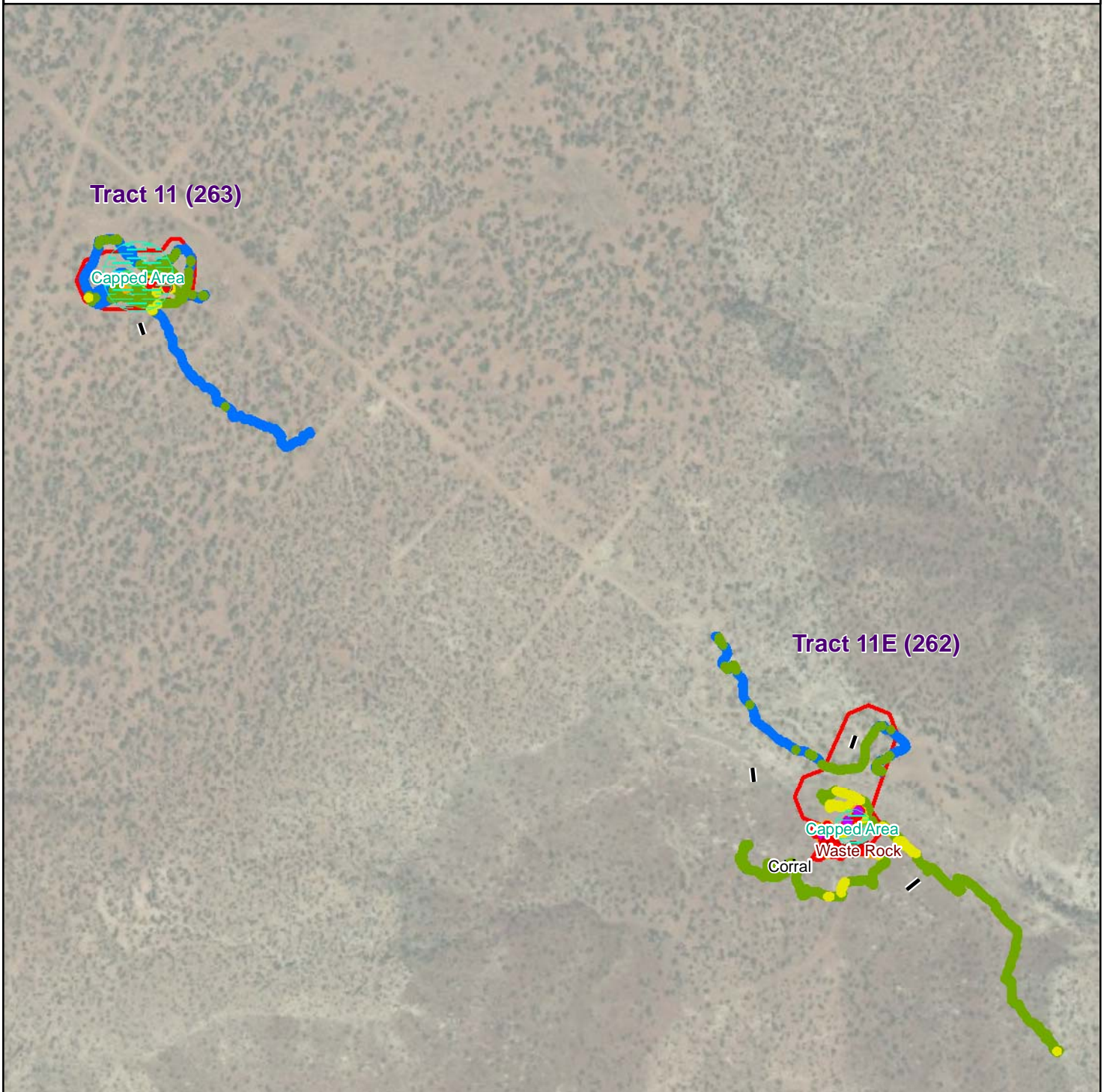
Average background 9,692 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Rock
- Observed Structure
- Observed Adit





**Figure 2 - Gamma Radiation Measurements  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



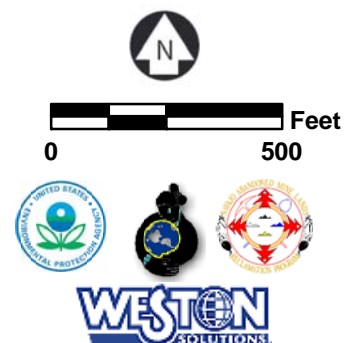
**Gamma Radiation Measurements**

- 0 - 10,000 cpm
- 10,000 - 25,000 cpm
- 25,000 - 50,000 cpm
- 50,000 - 100,000 cpm
- 100,000 - 250,000 cpm
- 250,000 - 500,000 cpm
- 500,000 - 1,000,000 cpm

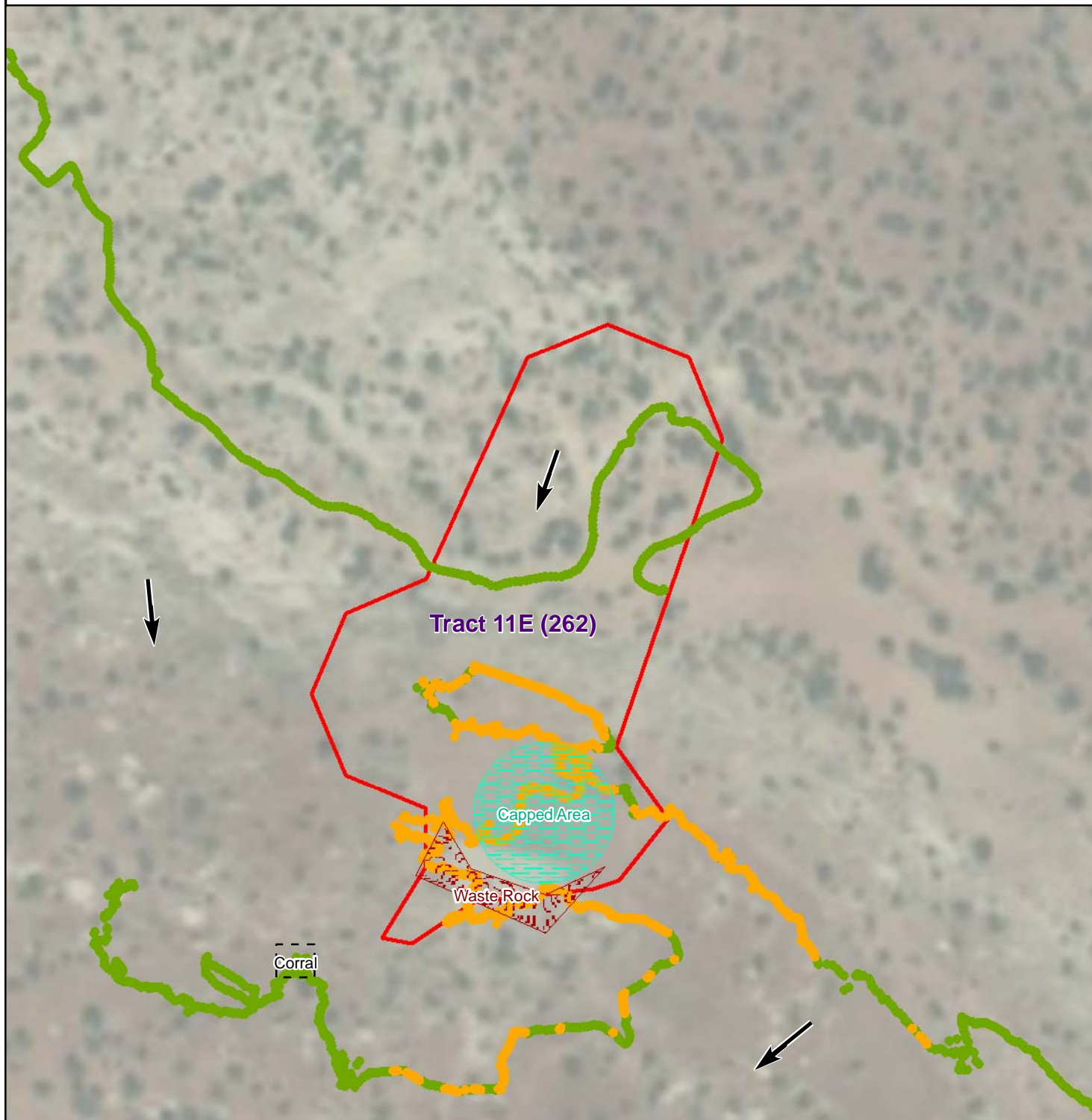
**Average background 9,692 cpm**

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Rock
- Observed Structure
- Observed Adit

**Measured as counts per minute (cpm)**



**Figure 3 - Gamma Radiation Measurements, Above Two Times Background  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

Measured as counts per minute (cpm)

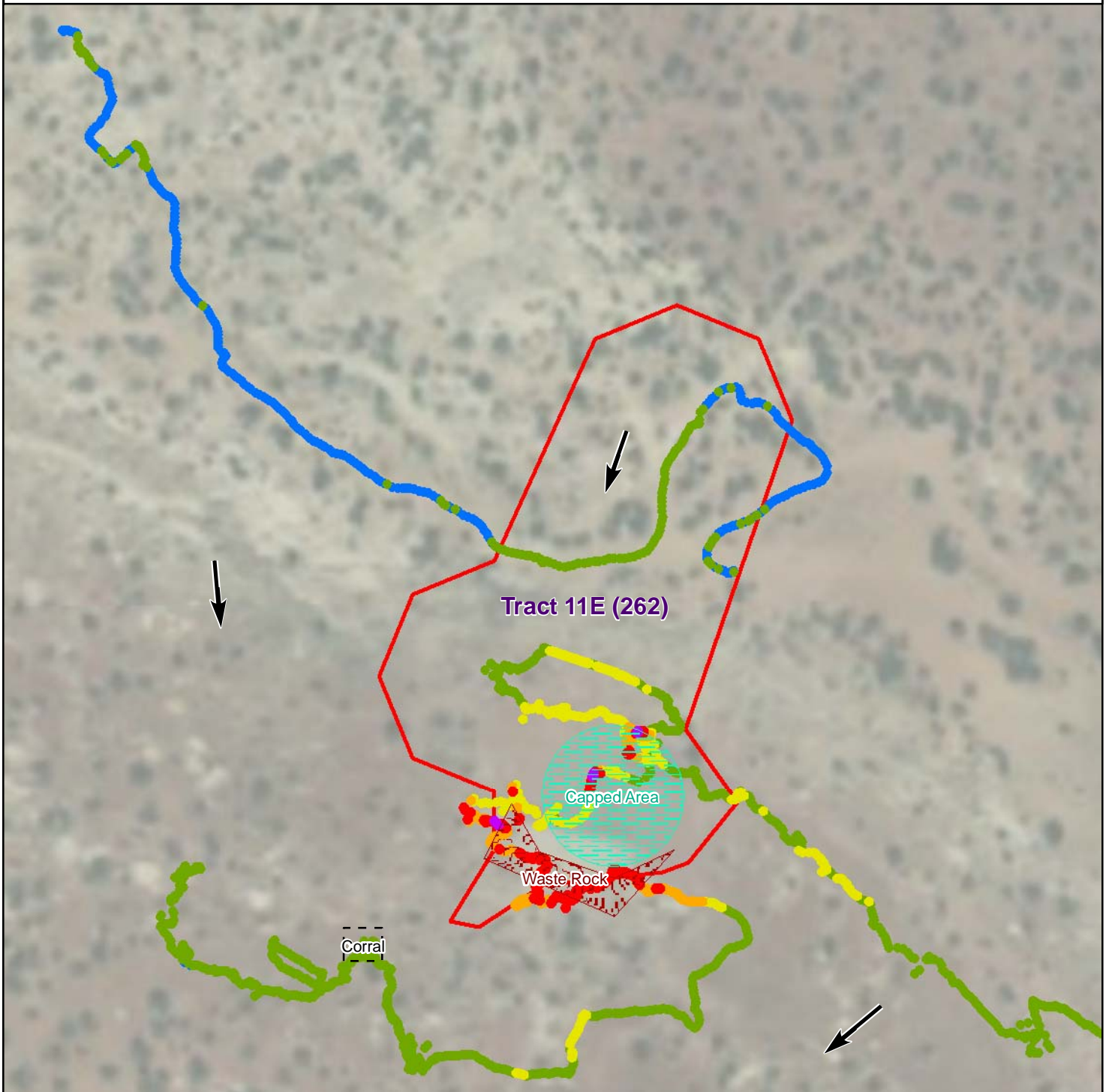
Average background 9,692 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Rock
- Observed Structure
- Observed Adit





**Figure 4 - Gamma Radiation Measurements  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- 0 - 10,000 cpm
- 10,000 - 25,000 cpm
- 25,000 - 50,000 cpm
- 50,000 - 100,000 cpm
- 100,000 - 250,000 cpm
- 250,000 - 500,000 cpm
- 500,000 - 1,000,000 cpm

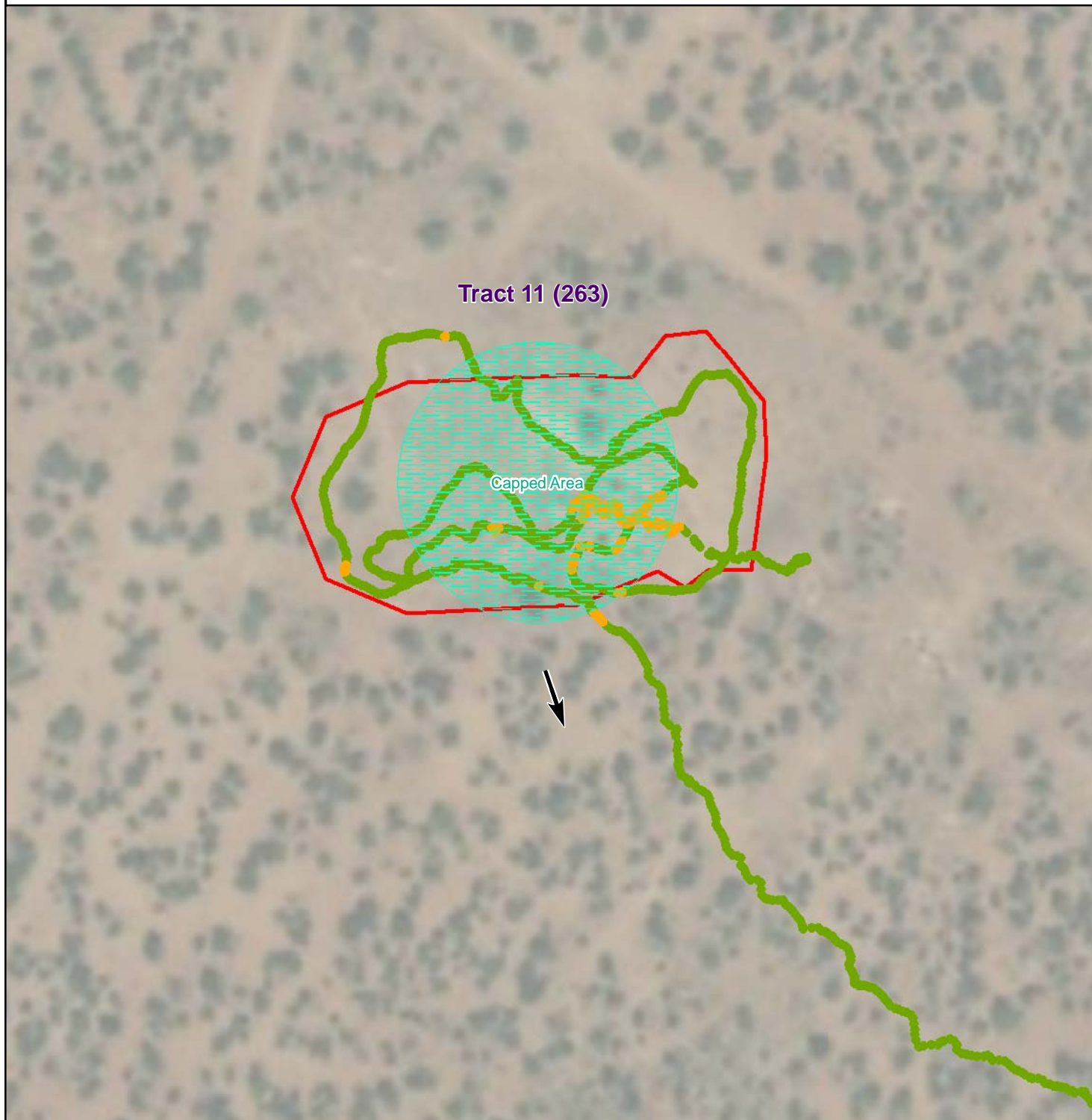
**Average background 9,692 cpm**

- ▭ Mine Site Boundary
- ➔ General Slope Direction
- ▨ Observed Reclamation Feature
- ▨ Observed Waste Rock
- ▨ Observed Structure
- ➔ Observed Adit

**Measured as counts per minute (cpm)**



**Figure 5 - Gamma Radiation Measurements, Above Two Times Background  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- < 2X Background
- > 2X Background

Measured as counts per minute (cpm)

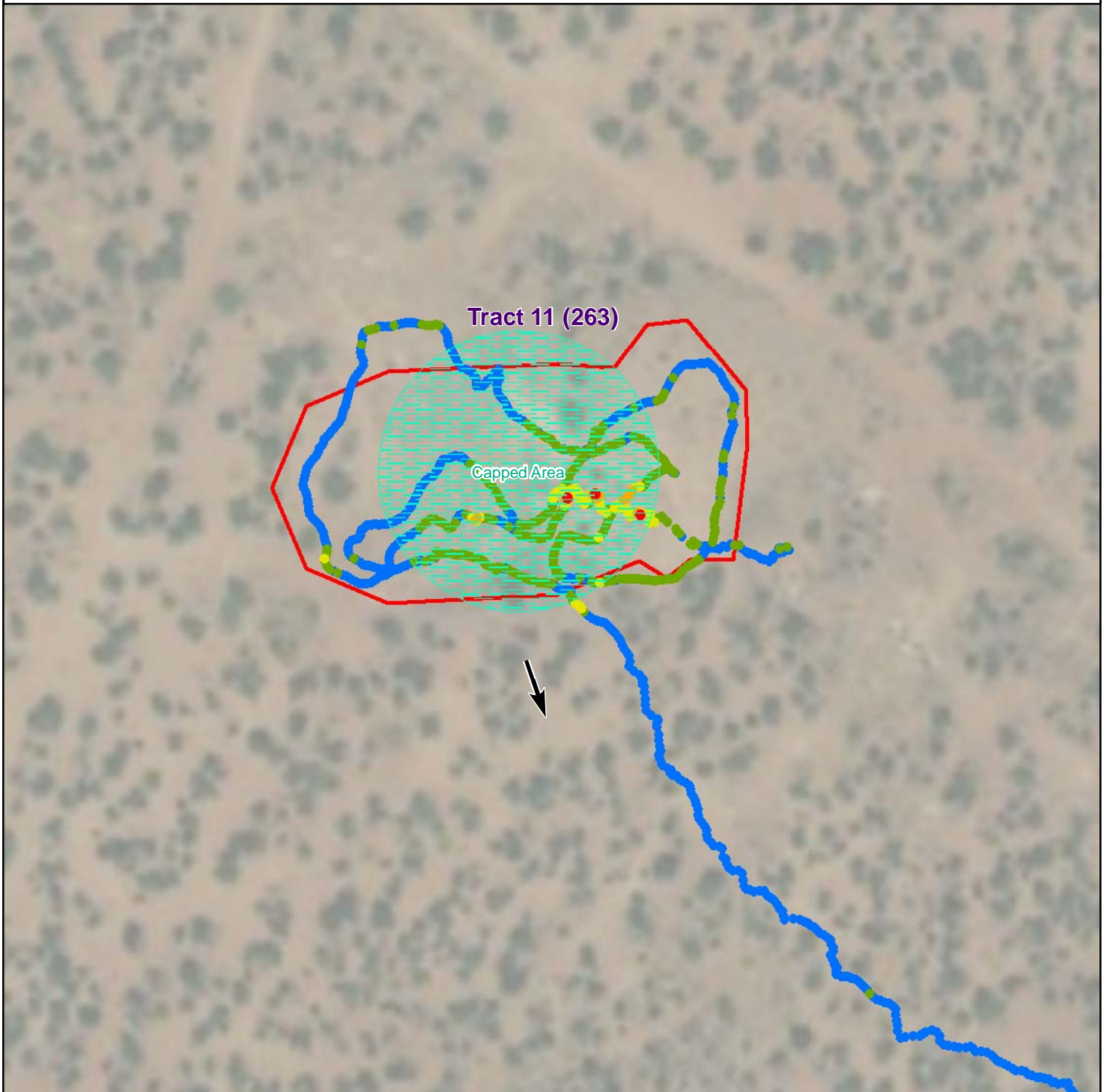
Average background 9,692 cpm

- Mine Site Boundary
- General Slope Direction
- Observed Reclamation Feature
- Observed Waste Rock
- Observed Structure
- Observed Adit





**Figure 6 - Gamma Radiation Measurements  
Tract 11 and Tract 11E (262, 263)  
Oljato Chapter, Navajo Nation**



**Gamma Radiation Measurements**

- 0 - 10,000 cpm
- 10,000 - 25,000 cpm
- 25,000 - 50,000 cpm
- 50,000 - 100,000 cpm
- 100,000 - 250,000 cpm
- 250,000 - 500,000 cpm
- 500,000 - 1,000,000 cpm

**Average background 9,692 cpm**

- ▭ Mine Site Boundary
- General Slope Direction
- ▨ Observed Reclamation Feature
- ▨ Observed Waste Rock
- ▭ Observed Structure
- ▭ Observed Adit

**Measured as counts per minute (cpm)**

